

Reproductive System

Grades 9-12, Lesson 2

Student Learning Objectives

The student will be able to ...

1. locate and name at least 80% of the parts of the male and female reproductive systems.
2. describe the path of an egg (ovum) during menstruation. Describe the path of a sperm during ejaculation.
3. understand there is a wide range of “normal” anatomy.

Agenda

1. Discuss the purpose of the lesson.
2. Brainstorm with the class about body parts.
3. Use *Reproductive System Visuals 1-6* to continue reviewing the male and female reproductive systems including the location and function of each part.
4. Lead the activity labeling parts of the reproductive system.
5. Assign homework.

This lesson was most recently edited on March 23, 2011.

Materials Needed

Student Materials

- **Reproductive System Worksheets** (1 copy per student)
- **Individual Homework: Anatomy** (1 copy per student)
- **Family Homework: Talking about the Reproductive System** (1 copy per student)

Classroom Materials

- **Reproductive System Visuals 1-6** (contained in this lesson & also available online as a PowerPoint slide: www.kingcounty.gov/health/FLASH)
- Labeled body parts for classroom activity, one set per class
- Seven pairs of scissors

Teacher Preparation

Well in advance ...

- **Review lecture notes** due to the large number of terms and definitions.

The day before the lesson ...

- **Make copies** of Materials Needed (see above)
- **Prepare visuals** for use on a SMART Board or projector. Note: When the lesson says “board,” use whatever is available in your classroom.

Standards

National Health Education Standard:

- **Standard 3:** Students will demonstrate the ability to access valid information, products and services to enhance health.
Performance Indicator 3.12.4: Determine when professional health services may be required.

Washington State Health Education Standard:

- **Essential Academic Learning Requirement (EALR) 2:** The student acquires the knowledge and skills necessary to maintain a healthy life: Recognizes dimensions of health, recognizes stages of growth and development, reduces health risks, and lives safely.
Component 2.2: Understands stages of growth and development.
Grade Level Expectations (GLE) 2.2.1: Analyzes the physiological and psychological changes throughout the lifetime.

Activities

NOTE: Instructions to you are in regular font. A suggested script is in *italics*. Feel free to modify the script to your style and your students' needs.

1. Discuss the purpose of the lesson.

Identify the lesson as, primarily, a review of information that many students learned in earlier grades. Explain that being well-grounded in knowledge about the reproductive system will help them make sense of discussions later in the unit about pregnancy, birth control, and sexually transmitted diseases. Also, if they have health problems in the future, knowing body parts helps them explain to a health provider what they think the problem may be.

2. Brainstorm with the class about body parts.

Write on the board in three columns: Male / Female / Both. Ask students to name reproductive system body parts, both internal and external, in the three columns. Fill in from the Teacher Master List (below) the parts that students don't mention. As you list the parts on the board, briefly define each body part, where it is in the body and what it does.

3. Use *Reproductive System Visuals 1-6* to continue reviewing the male and female reproductive systems, including the location and function of each part.

Use a document camera (or SMART Board, overhead projector, etc) to project the images on the board. Explain that the parts labeled as male, female, or both are for most people, but when people are intersex (i.e., they have a disorder of sex development), there may be some differences ... differences that were present at birth.

NOTE: Briefly review "what it does" (each part's function, below) if students are unfamiliar with the physiology, as you point to the visuals. Please do **not** feel that you must convey every bit of information in the Teacher Background chart, below. Find more suggested language regarding the hymen and circumcision in Lesson 16, p 5.

Teacher Background

Male Part	What it Is / What it Does
penis (made up of shaft, glans, and sometimes foreskin)	<ul style="list-style-type: none"> • allows passage of urine and of semen • provides sensation (has many nerve endings) • the average penis measures 3-4" when it's not erect (flaccid) and 5-7" when erect¹
foreskin	<ul style="list-style-type: none"> • protects the glans of the penis • provides sensation • males who've been circumcised don't have one
scrotum	<ul style="list-style-type: none"> • muscular sac which is shorter when cold, longer when warm • holds testes • controls temperature • provides sensation

testes (also called testicles) singular = testis	<ul style="list-style-type: none"> produce sperm and sex hormones (androgens, testosterone) each is made of 500-1,200 feet² of tightly coiled tubes
epididymis (plural = epididymes)	<ul style="list-style-type: none"> allows maturation of sperm
spermatozoan (plural = spermatozoa)	<ul style="list-style-type: none"> cell from a man (commonly called "sperm") they carry strings of genes (called "chromosomes") or DNA instructions in case the sperm cell meets with an egg cell and fertilizes it.
spermatic cords	<ul style="list-style-type: none"> suspend the testis supply blood to the testis provide sensation carry sperm from the testis
vas deferens (plural = vasa deferentia ... also called sperm ducts)	<ul style="list-style-type: none"> provides storage for sperm allow passage of sperm as big around as sewing thread they lead into the abdomen, where (behind the bladder) they widen into storage sacs
seminal vesicles	<ul style="list-style-type: none"> contribute fructose (sugar) to semen for nourishing the sperm
semen	<ul style="list-style-type: none"> helps sperm live longer and travel better about a teaspoon full per ejaculation
prostate gland	<ul style="list-style-type: none"> produces most of the fluid that makes up semen
Cowper's glands (also called bulbourethral glands)	<ul style="list-style-type: none"> pair of glands produce fluid called pre-ejaculate or "pre-cum" that cleanses the urethra of acid (from urine) to protect the sperm

Female Part	What it Is / What it Does
uterus (made up of muscular walls, a lining called the endometrium, and a cervix. The uterus is also called "womb")	<ul style="list-style-type: none"> houses and protects embryo/fetus/baby allows nutrient & waste exchange with placenta nourishes an embryo, before a placenta grows
cervix	<ul style="list-style-type: none"> the bottom section of the uterus produces fluids to help sperm travel produces a mucous plug to keep germs out during pregnancy
vagina	<ul style="list-style-type: none"> allows passage of sperm produces fluids to cleanse and lubricate itself and to help sperm travel allows passage of shed endometrium during menstruation allows passage of baby provides sensation (has many nerve endings especially in the outer third) a collapsed tube, like a deflated balloon

	<ul style="list-style-type: none"> • 3” long when not aroused, 5-6” when aroused,³ but very stretchy • is the middle of female’s three openings
hymen (for more information, see Lesson 16, page 4)	<ul style="list-style-type: none"> • membrane partly covering vaginal opening • some girls are born without a hymen • may be stretched during sexual intercourse or by using a tampon or with fingers
ova (singular = ovum ...also called egg cell)	<ul style="list-style-type: none"> • carry strings of genes called chromosomes which mix with chromosomes of sperm to direct fetal development if fertilized and implanted in the uterus • they dissolve in the Fallopiian tube after about 24 hours if not fertilized⁴
ovaries (singular = ovary)	<ul style="list-style-type: none"> • provide storage for ova • allow maturation of ova • produce sex hormones (estrogen, progesterone, androgens)
Fallopiian tubes	<ul style="list-style-type: none"> • allow passage of ova toward uterus • allow passage of sperm from uterus
fimbria (plural = fimbriae)	<ul style="list-style-type: none"> • guides a mature ovum, when it is released from an ovary, into a Fallopiian tube • fringe-like or finger-like outer ends of the Fallopiian tube
Skene’s glands	<ul style="list-style-type: none"> • area of firm tissue anterior (towards the front) to the wall of the vagina, surrounding the urethra • responds to pressure sometimes causing orgasm⁵ and sometimes produces fluid (it is not urine) • also known as Graffenberg-spot (G-spot) or the female prostate gland
vulva (made up of labia majora, labia minora, and clitoris)	<ul style="list-style-type: none"> • protect openings of urethra and vagina, as eyelids protect eyes • provide sensation (has many nerve endings) • labia are folds of skin • outer labia (labia majora) have pubic hair
clitoris (made up of shaft, crura [internal branches], glans and hood)	<ul style="list-style-type: none"> • provides sensation (has many nerve endings) • each internal branch of erectile tissue is about 3½” long • the glans (the visible part of the clitoris) is usually ¼-½” long , comparable in size to a pearl at front of vulva, where the labia meet⁶
clitoral hood	<ul style="list-style-type: none"> • protects the glans of the clitoris • provides sensation (has many nerve endings) • like a cap, mostly covers the clitoris, when it isn’t erect

Both Male and Female	What it Is / What it Does
navel	<ul style="list-style-type: none"> allows passage of oxygen and nourishment before birth after birth, it serves no purpose not part of the reproductive system
abdomen (also called the belly)	<ul style="list-style-type: none"> contains most of our internal organs the part of the body between the rib cage and the pelvis
buttocks	<ul style="list-style-type: none"> provides cushion for tail bone and aids in walking and standing contains muscles for movement not part of the reproductive system
pelvis (the “pelvic region” the lower abdomen)	<ul style="list-style-type: none"> bowl shaped bone structure that supports and protects the internal reproductive organs men’s and women’s pelvises are shaped differently so that women can give birth
cilia (singular=cilium)	<ul style="list-style-type: none"> hair-like structures which line the Fallopiian tubes and the epididymes, sweep an ovum down the Fallopiian tube sweep sperm cells through the epididymes
bladder	<ul style="list-style-type: none"> provides storage for urine not part of the reproductive system
urethra	<ul style="list-style-type: none"> allows passage of urine in males allows passage of semen it’s the tube inside the penis in females, it is below the clitoris but above the opening of the vagina not part of the reproductive system some females ejaculate a clear fluid that is not urine from their urethra during orgasm this is normal and natural and women should not think they are peeing during sex if it happens⁷
anus	<ul style="list-style-type: none"> allows passage of bowel movement (feces) provides sensation (has many nerve endings) the opening from the rectum and lower intestines not part of the reproductive system

4. Lead the activity labeling parts of the reproductive system.

This card activity is only for the internal male and female reproductive system views. Ask for volunteers. Hand out the cards with the individual parts and corresponding words. (For example, one card has a picture of the Fallopiian tube going towards the right with the words “FALLOPIAN TUBE” printed on it. There will be another card with a picture of the tube going towards the left.) The assignment will be for the students who have the cards to go to the front of the room and put these cards together to make the bigger picture of the internal reproductive system. Do this for both male and female. You can divide the class into teams

and make it a competition if you like. Or have a group of 3-4 volunteers complete the activity in front of the rest of the students.

It is okay for puzzle pages to overlap, but if it is less confusing to see each body part connect properly, students can use scissors to cut the parts out so they fit more tightly together.

5. Assign homework.

a. *Individual Homework: Anatomy*

b. *Family Homework: Talking about the Reproductive System*

Reminder: The English version is on the last page of this lesson plan. You will find the *Family Homework* in English, Spanish, Russian, Chinese, Vietnamese and Arabic at www.kingcounty.gov/health/FLASH – click on “Parents & Guardians.”

Related Activities for Integrated Learning

ART

Look for illustrations of the reproductive system online or in books. Bring examples to class of those you think are the most artistic, the easiest to understand, or the most confusing.

FAMILY AND CONSUMER SCIENCE

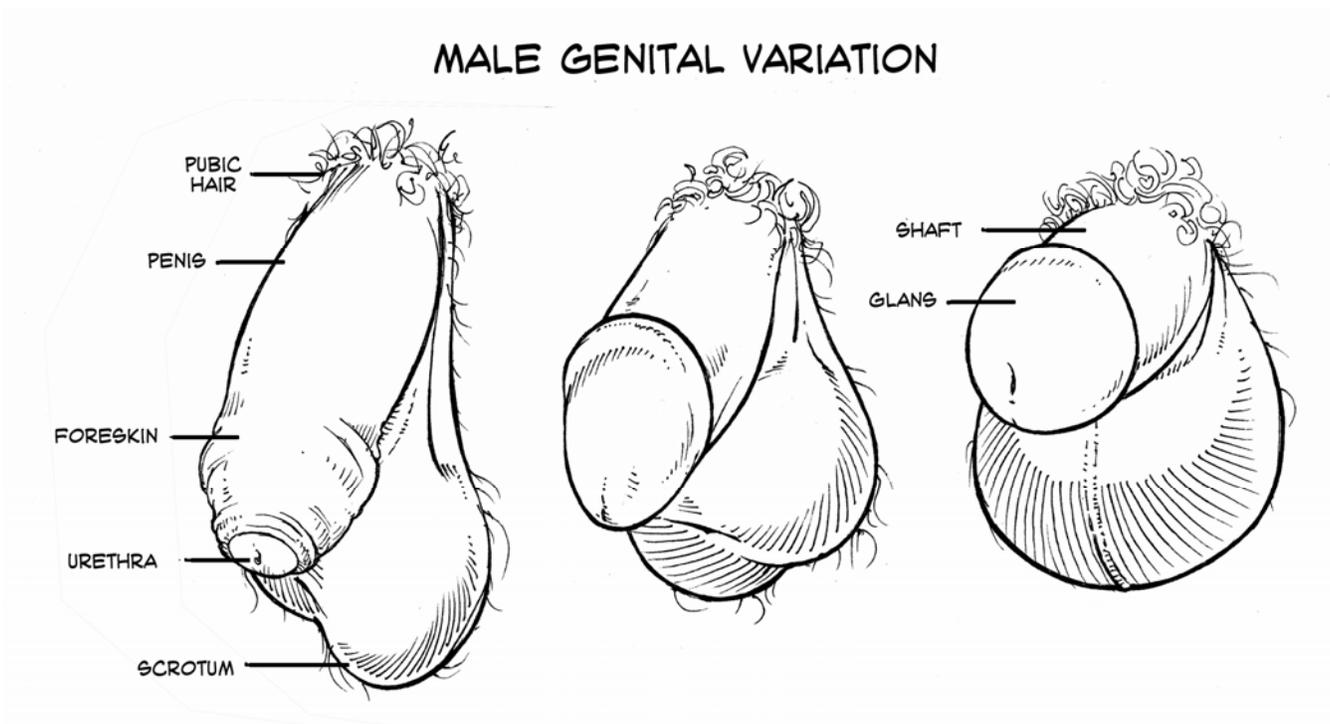
Research steroids that have been used by athletes. Write a paragraph about why these can be harmful to the reproductive system, especially for teens. What is the effect of steroids on both males and females? What steroids do doctors prescribe for people with medical problems? How are they different from steroids to improve athletic performance?

MATH

Find statistics on the number of sperm cells that males produce in a lifetime. Find comparable statistics on the number of egg cells that females are born with. Were these numbers higher or lower than what you expected? Create a graph or chart or table showing the difference in these numbers.

Reproductive System Visual 1:

External Male Views

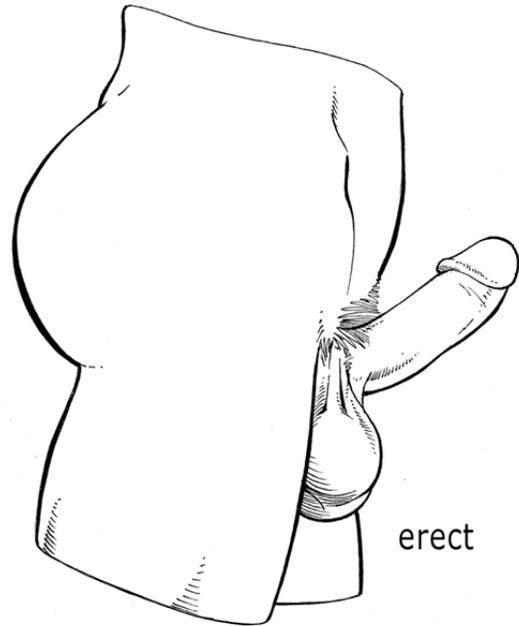
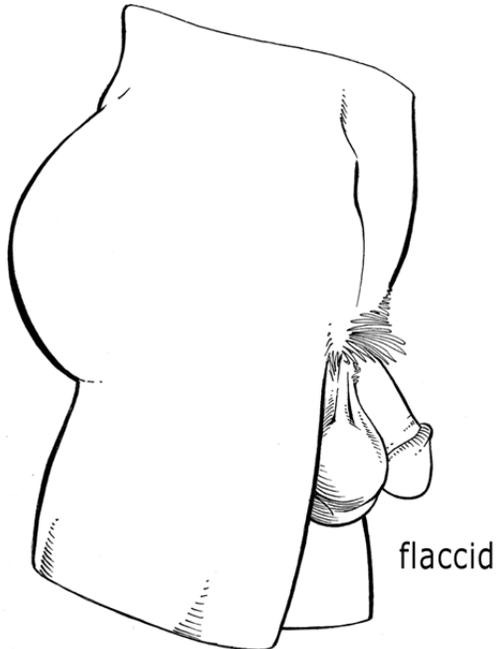


NOTE ABOUT THESE PICTURES AND THE ONES ON THE NEXT FEW PAGES: These illustrations do not represent all people's bodies, including people who have not yet reached puberty, people with certain disabilities, and some people who are intersex or transgender. Also, the shapes and sizes of people's bodies and body parts vary greatly from person to person.

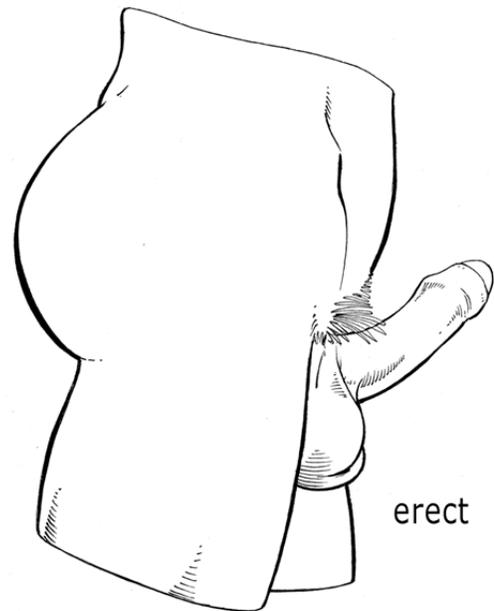
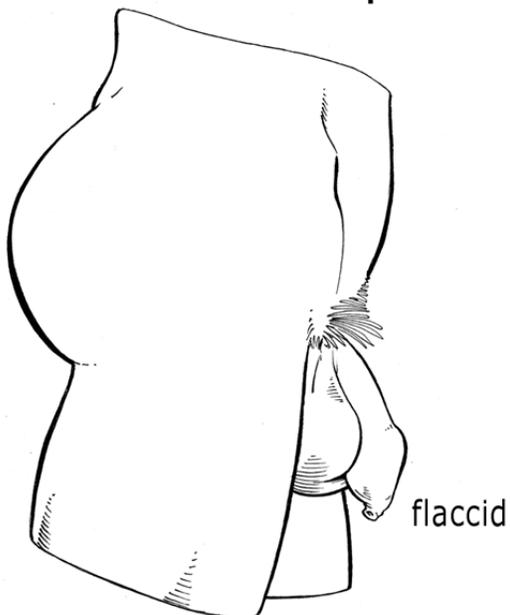
Reproductive System Visual 2:

More External Male Views

circumcised penis

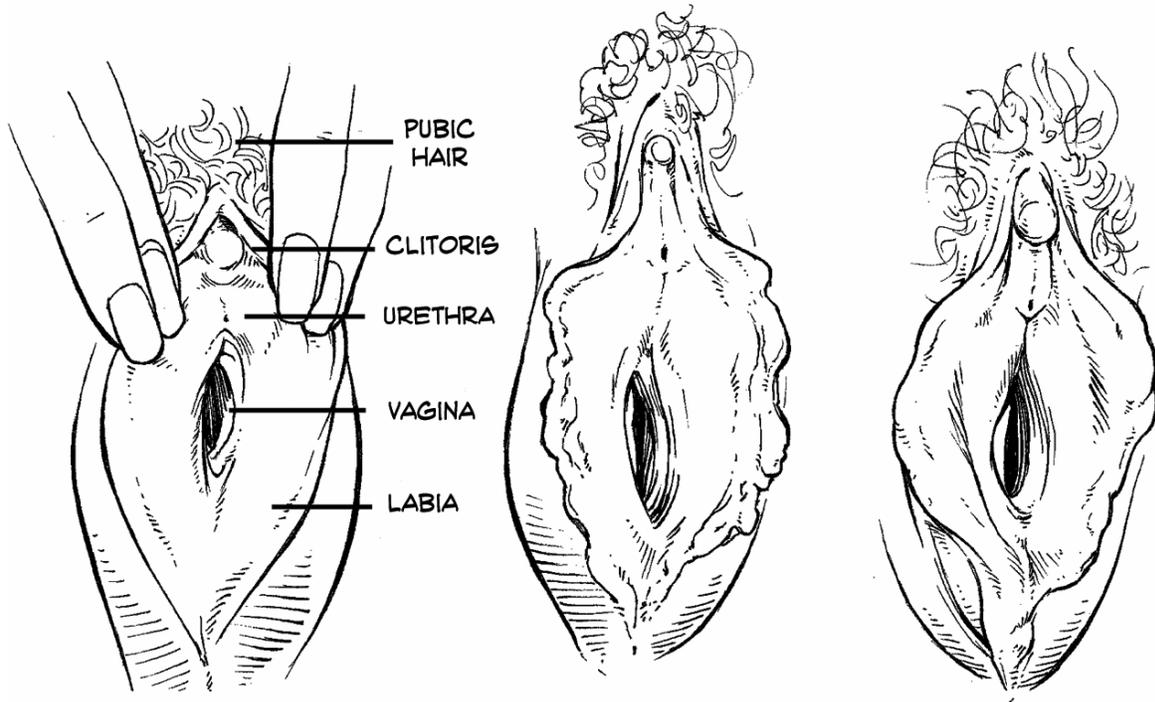


uncircumcised penis

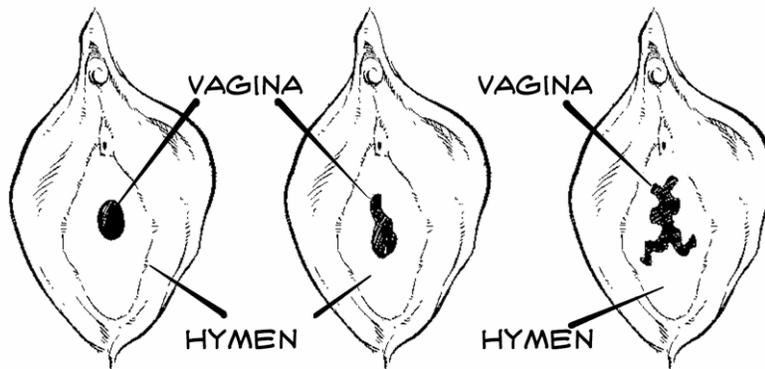


Reproductive System Visual 3: External Female Views

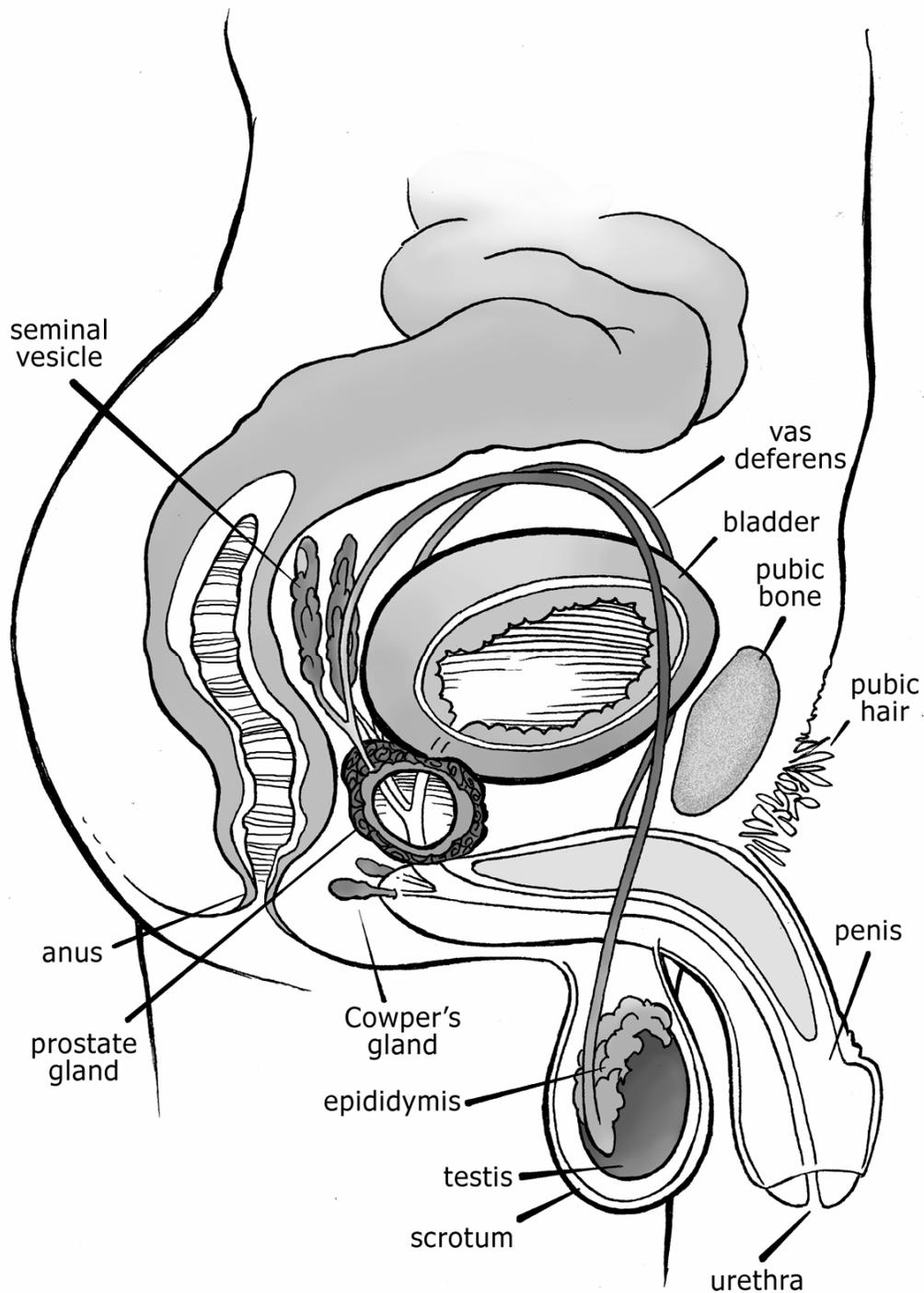
FEMALE GENITAL VARIATION



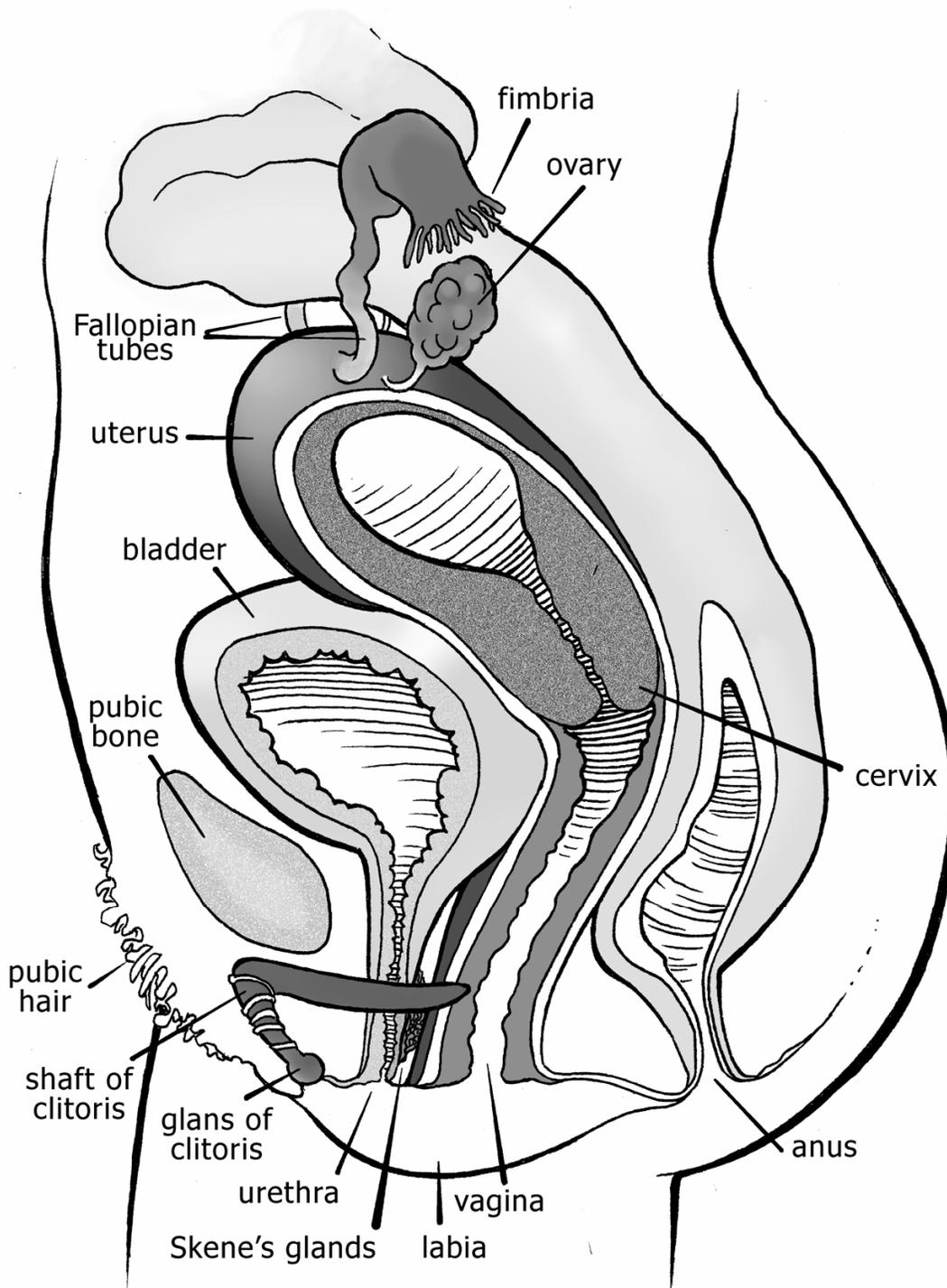
NORMAL HYMEN VARIATIONS



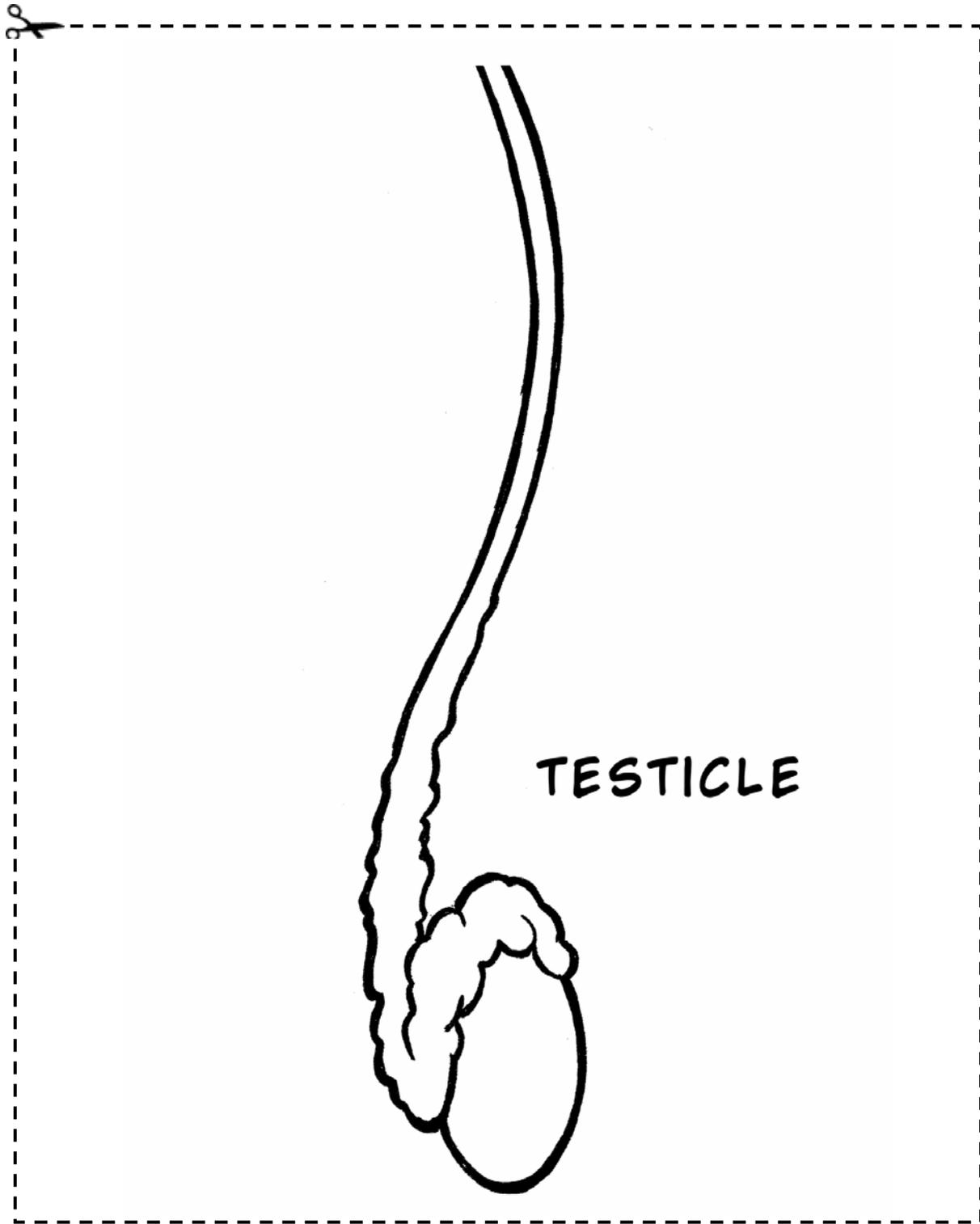
Reproductive System Visual 4: Male Internal View



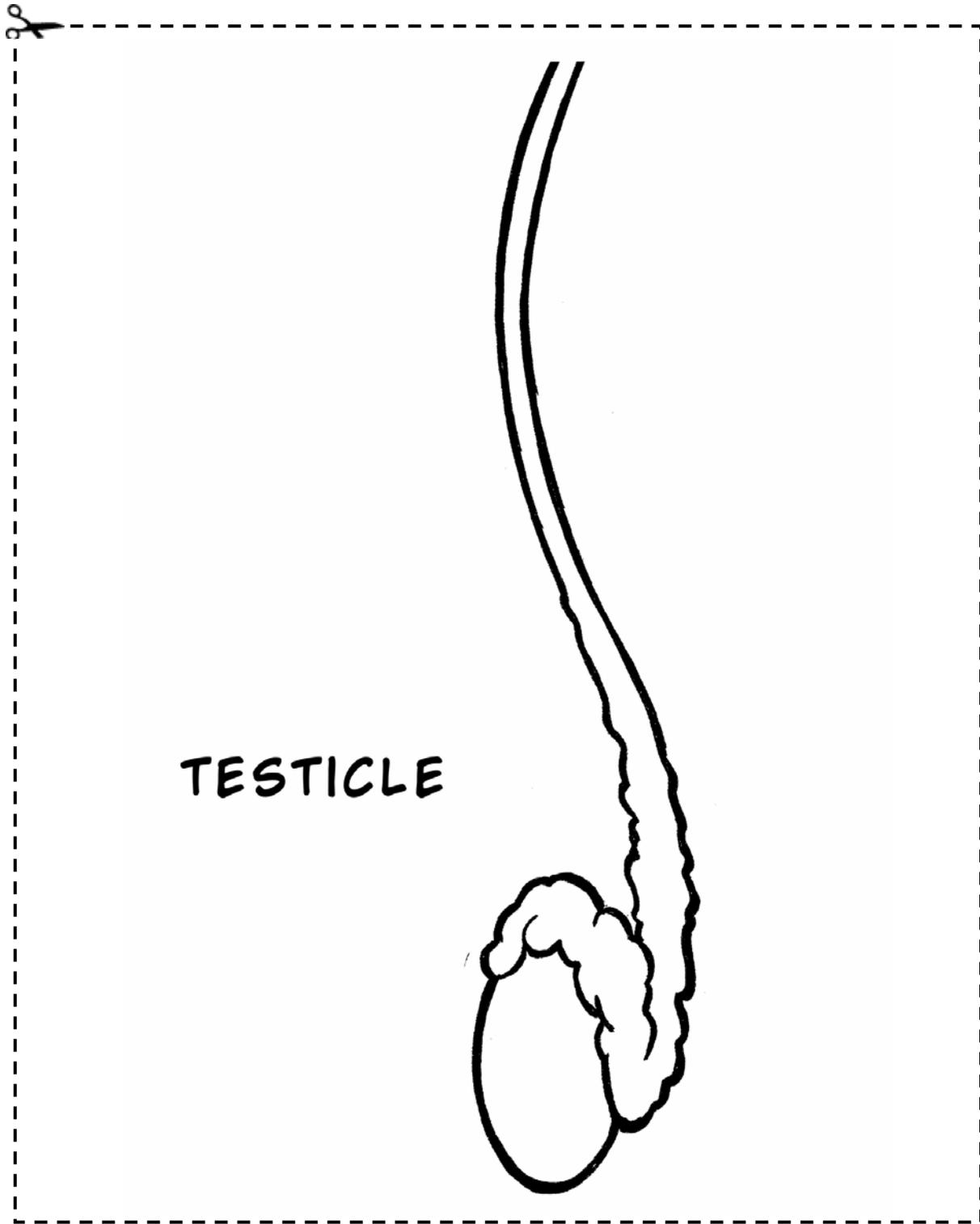
Reproductive System Visual 5: Female Internal View



Reproductive System Puzzle Part 1



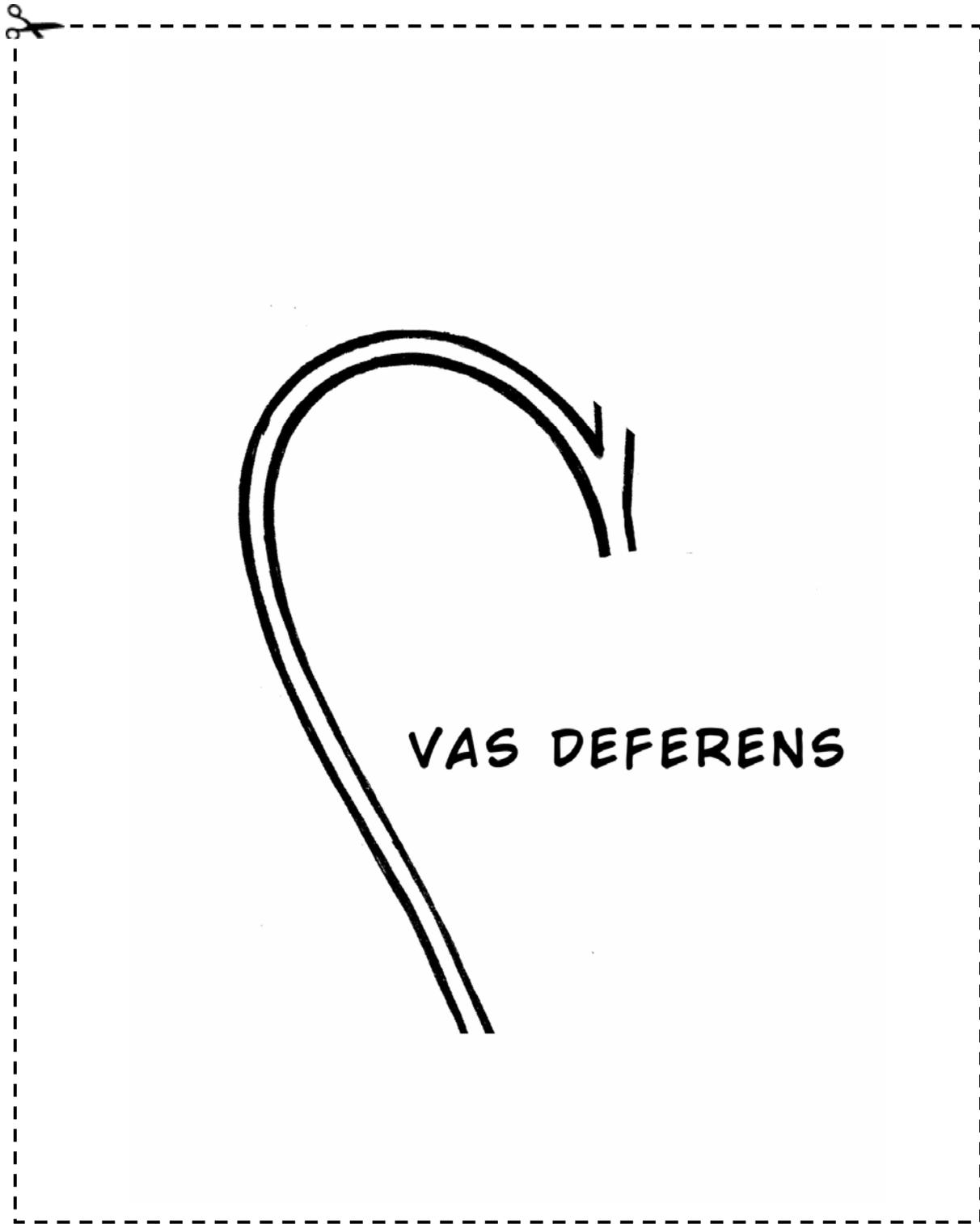
Reproductive System Puzzle Part 2



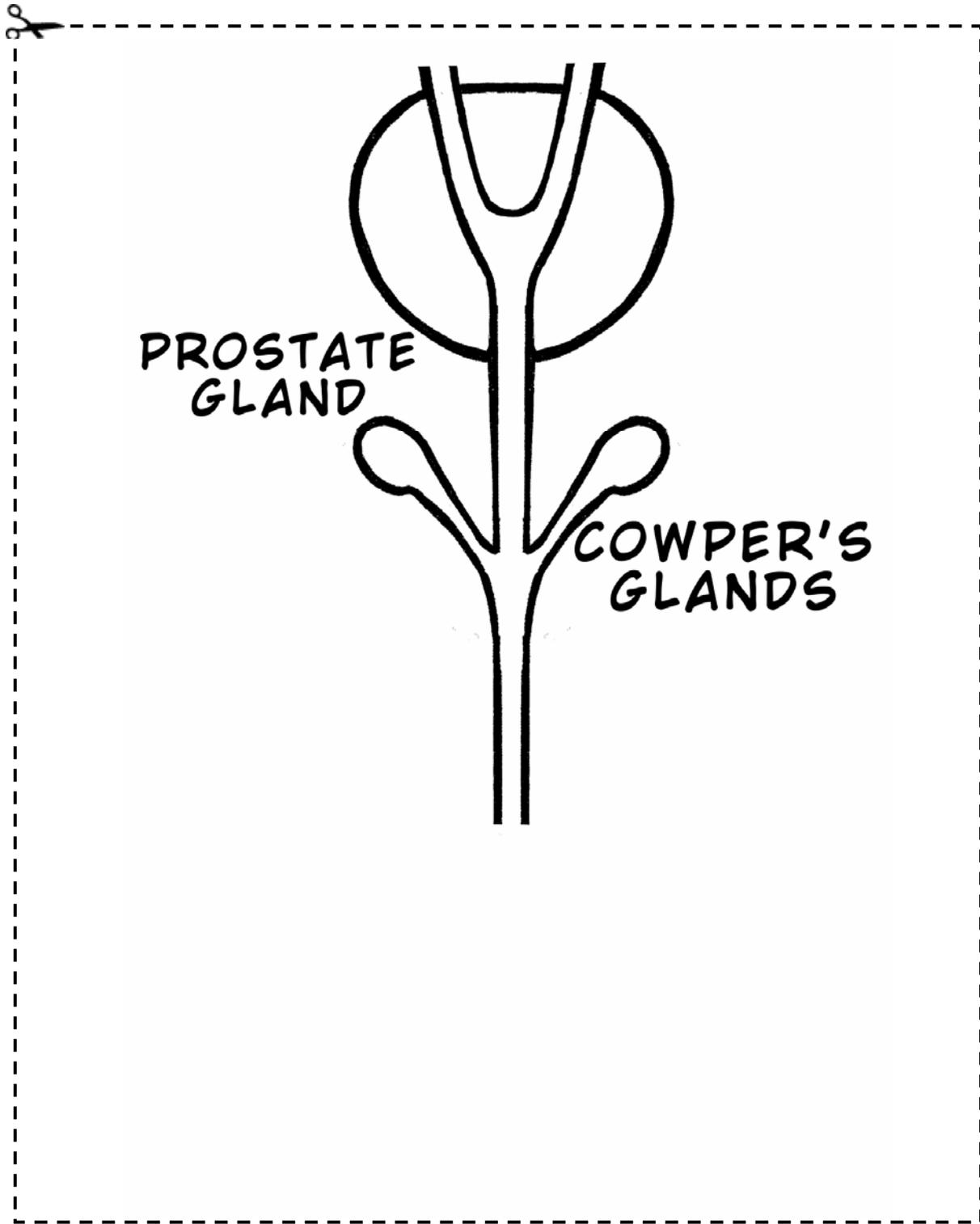
Reproductive System Puzzle Part 3



Reproductive System Puzzle Part 4



Reproductive System Puzzle Part 5



Reproductive System Puzzle Part 6



SEMINAL VESICLE



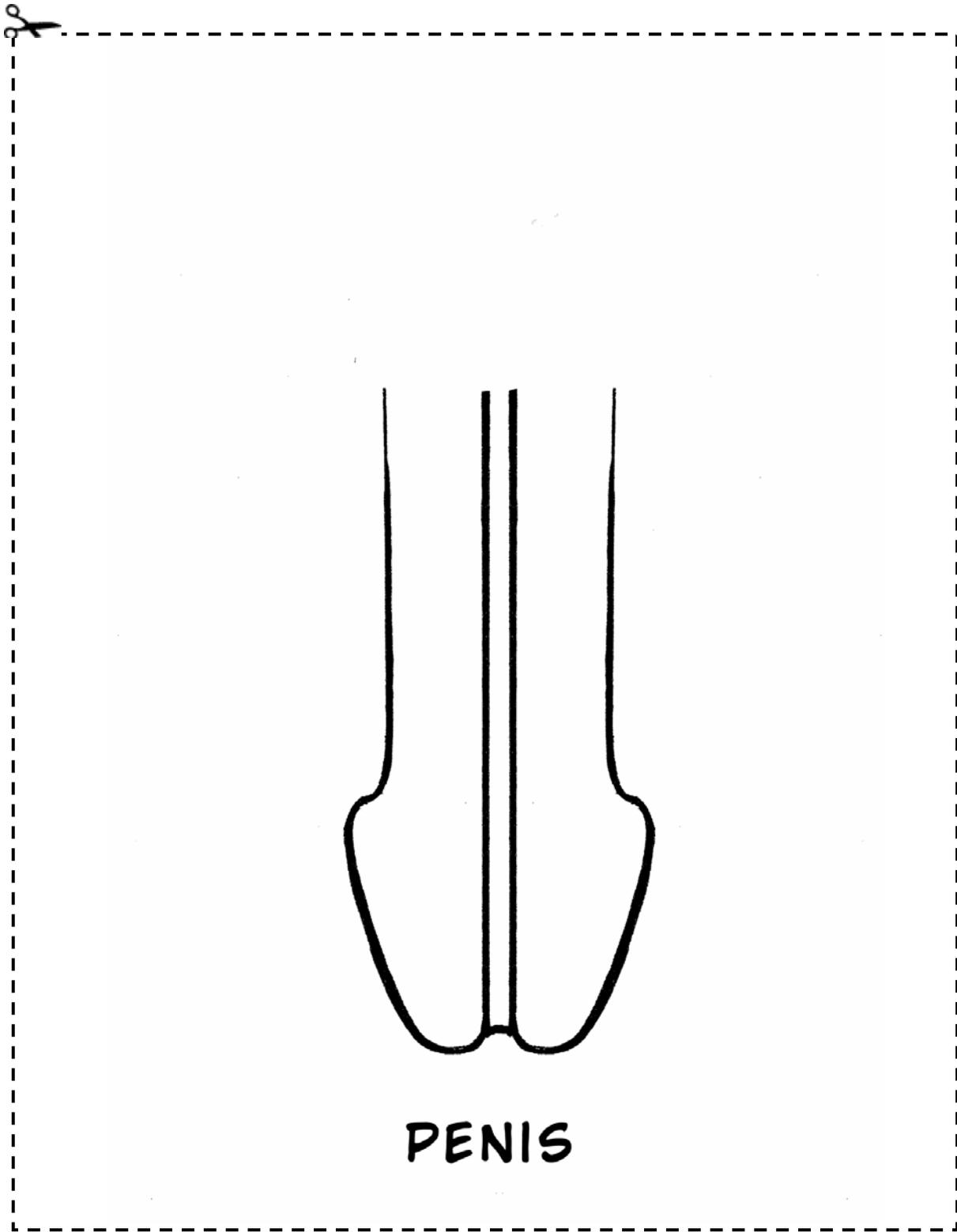
Reproductive System Puzzle Part 7



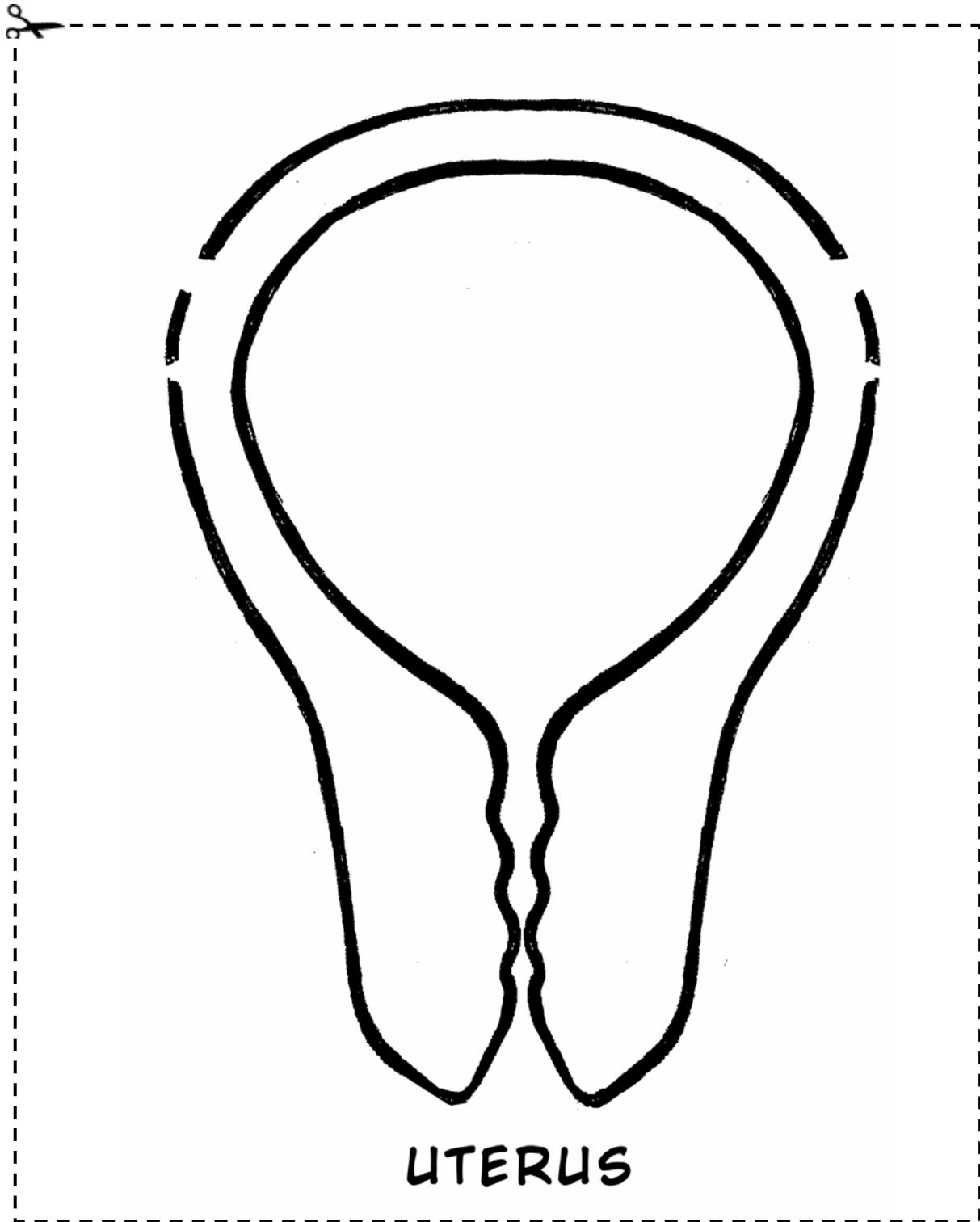
SEMINAL VESICLE



Reproductive System Puzzle Part 8

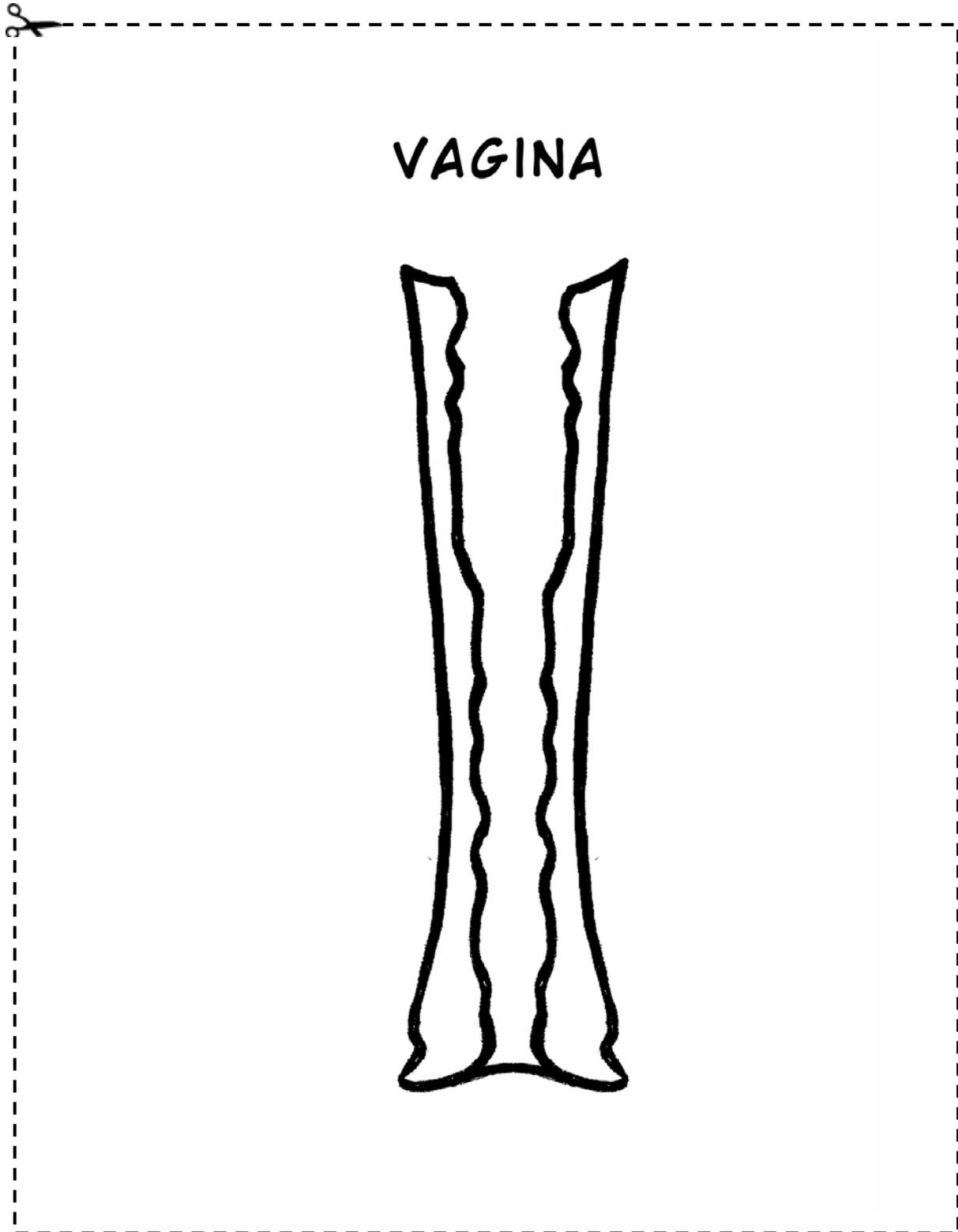


Reproductive System Puzzle Part 9

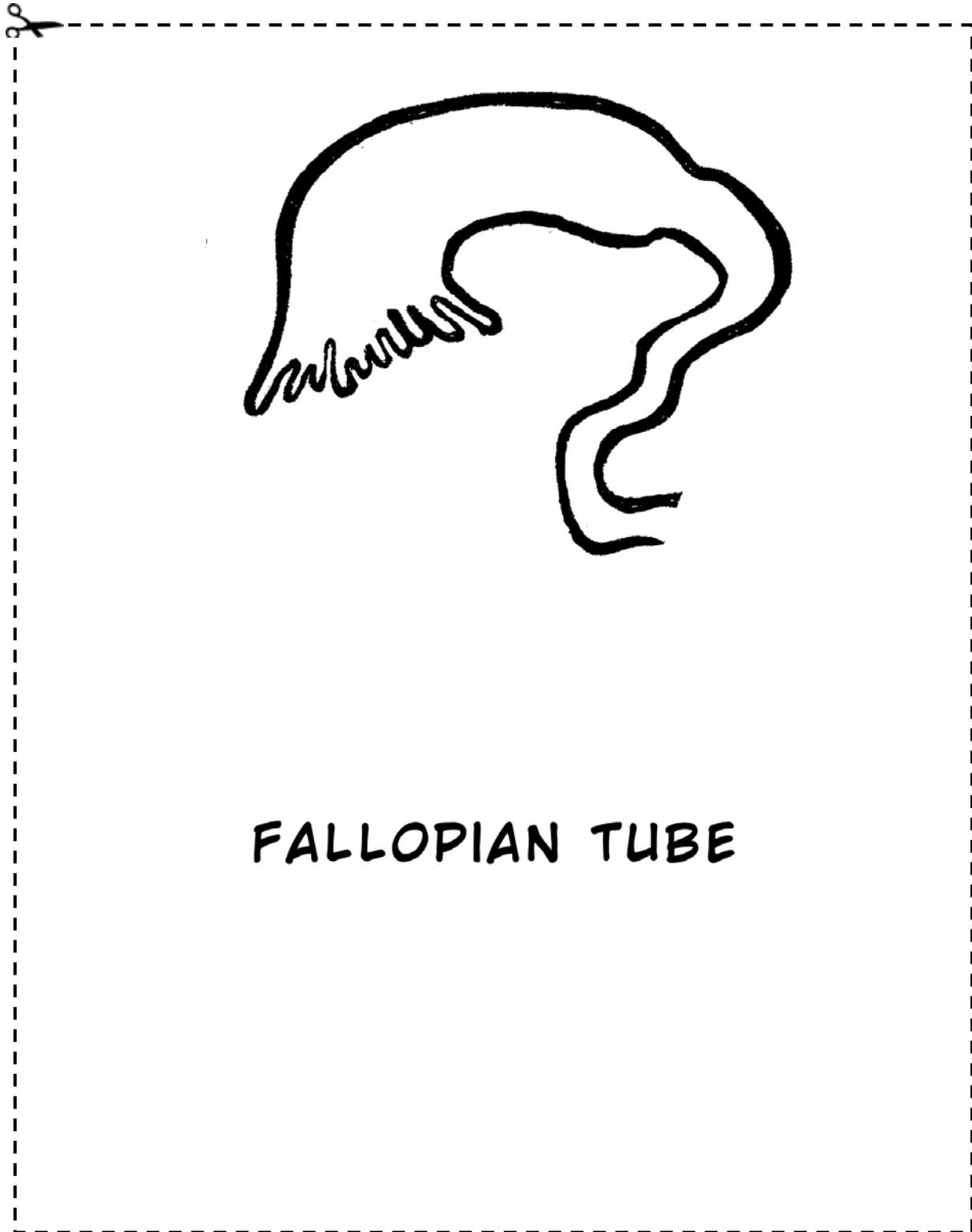


UTERUS

Reproductive System Puzzle Part 10



Reproductive System Puzzle Part 11

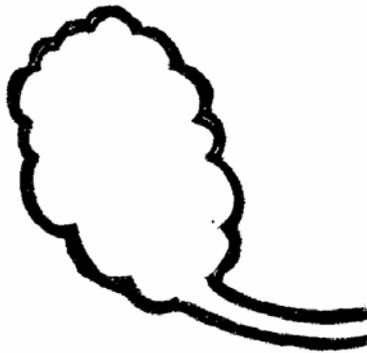


Reproductive System Puzzle Part 12



FALLOPIAN TUBE

Reproductive System Puzzle Part 13



OVARY

Reproductive System Puzzle Part 14



OVARY

Individual Homework: Anatomy

Directions: For each body part, do the following:

Circle "M" if the part is found in people who were born male. Circle "F" if the part is only found in females. Circle both "M" and "F" if they are found in people of all sexes. Circle "1" if most people have one of that part. Circle "2" if most people have two. The first one is done for you as an example.

<u>Body Part</u>	<u>Male or Female 1 or 2</u>			<u>Body Part</u>	<u>Male or Female 1 or 2</u>				
abdomen	<input checked="" type="checkbox"/> M	<input checked="" type="checkbox"/> F	<input checked="" type="checkbox"/> 1	2	pelvis	M	F	1	2
anus	M	F	1	2	penis	M	F	1	2
bladder	M	F	1	2	prostate gland	M	F	1	2
buttocks	M	F	1	2	scrotum	M	F	1	2
cervix	M	F	1	2	seminal vesicle	M	F	1	2
cilium	M	F	N/A		Skene's glands	M	F	N/A	
clitoral hood	M	F	1	2	testicle	M	F	1	2
clitoris	M	F	1	2	urethra	M	F	1	2
Cowper's gland	M	F	1	2	uterus	M	F	1	2
epididymis	M	F	1	2	vagina	M	F	1	2
Fallopian tube	M	F	1	2	vas deferens	M	F	1	2
fimbria	M	F	1	2	vulva	M	F	1	2
foreskin	M	F	1	2					
hymen	M	F	1	2					
navel	M	F	1	2					
ovary	M	F	1	2					

Answer the questions below. The answers are **not** on the list above. Spelling counts.

- What is the common word for spermatazoa? _____
- What fluid carries and nourishes them? _____
- When this fluid comes out of the penis, what is that process called?

- What is the medical word for "period"? _____
- What is the medical term for "wet dream"? _____

Individual Homework:

Anatomy Answer Key

Body Part	<u>Male or Female 1 or 2</u>			Body Part	<u>Male or Female 1 or 2</u>		
abdomen	M	F	1	pelvis	M	F	1
anus	M	F	1	penis	M		1
bladder	M	F	1	prostate gland	M	F	1
buttocks	M	F	2	scrotum	M		1
cervix		F	1	seminal vesicle	M		2
cilium	M	F	N/A	Skene's glands		F	N/A
clitoral hood		F	1	testicle	M		2
clitoris		F	1	urethra	M	F	1
Cowper's gland	M		2	uterus		F	1
epididymis	M		2	vagina		F	1
Fallopian tube		F	2	vas deferens	M		2
fimbria	M	F	N/A	vulva		F	1
foreskin*	M		1				
hymen**		F	1				
navel	M	F	1				
ovary		F	2				

* No foreskin if circumcised.

** May have no hymen.

*** The Skene's glands in the female are sometimes referred to as the female prostate. The prostate gland in males is actually made up of 30-50 small glands.

Answer the questions below. (The answers are **not** on the list above.) Spelling counts.

- What is the common word for spermatazoa? sperm
- What fluid carries and nourishes them? semen
- When this fluid comes out of the penis, what is that process called?
ejaculation
- What is the medical word for "period"? menstruation
- What is the medical term for "wet dream"? nocturnal emission

Family Homework: Talking about the Reproductive System

All Family Homework is optional. You may complete an Individual Homework assignment instead.

Purpose: This is a chance to share with one another some of your own (and your family’s, your religion’s) beliefs about sexuality and relationships. It will also give you a chance to get to know one another a little better.

Directions: Find a quiet place where the two of you – the student and the trusted adult (parent, guardian, stepparent, adult friend of the family, best friend’s parent, etc.) – can talk privately. Set aside about 10 minutes. During this time, please give full attention to one another ... no texting, watching TV and so on.

Now ask one another the following questions, with the understanding that:

- You are each welcome to say, “That one is too private. Let’s skip it.”
- What you discuss will not be shared with anyone else, even within the family, unless you give one another permission to share it.
- It’s OK to feel silly or awkward and it’s important to try the homework anyway.

We recommend that you take turns asking questions. When it is your turn to listen, really try to understand the other person’s response.

ASK THE ADULT: Are there words or names of reproductive system body parts that are unique to our culture or family ... special names we give to body parts that have meaning to you?

ASK THE STUDENT: What names of body parts and their functions did you learn about in class today?

ASK EACH OTHER: Do you have any funny stories about names for body parts? (for example, if you could not pronounce the word penis as a child and called it a peepee instead)



NOTE to teachers: There is no homework for lesson 1; this is for lesson 2.

Family Homework: Reproductive System – Confirmation Slip

FOR FULL CREDIT, THIS HOMEWORK IS DUE: _____

We have completed this Homework Exercise.

Date: _____

student’s signature

signature of family member or trusted adult

References

- ¹ *Penis-enlargement Scams: You're more normal than you think*. Mayo Foundation for Medical Education and Research (MFMER), May 22, 2009, retrieved on October 11, 2010 from www.mayoclinic.com/print/penis/MC00026/METHOD=print
- ² *Brief anatomy and physiology of male reproductive system*. Retrieved December 30, 2010, from State University of NY at Stony Brook, Urology website: www.uhmc.sunysb.edu/urology/male_infertility/anatomy_and_physiology_of_male_reproductive_system.html
- ³ *Bodies: Genitalia and Sexuality Related Body Issues*. Retrieved December 30, 2010, from Kinsey Institute website: kinseyconfidential.org/resources/bodies/
- ⁴ Losos, JB; Raven, PH; Johnson, GB; Singer, SR. (2002). *Biology*. New York: McGraw-Hill. pp. 1207–09. ISBN 0-07-303120-8
- ⁵ Wimpissinger, F., Stifler, K., Grin, W., and Stackl, W. (2007). The female prostate revisited: perineal ultrasound and biochemical studies of female ejaculate. *The Journal of Sexual Medicine*, 4; 1388 - 1393.
- ⁶ Losos, JB; Raven, PH; Johnson, GB; Singer, SR. (2002).
- ⁷ Wimpissinger, F., Stifler, K., Grin, W., and Stackl, W. (2002).